



Garbage Truck Maintenance Review Audit Report A2013-09

Issued by the
Internal Audit Office
June 28, 2013

**City of El Paso
Internal Audit Office
Garbage Truck Maintenance Review Audit A2013-09**

EXECUTIVE SUMMARY

The Internal Audit Office has concluded its audit of the Garbage Truck Maintenance operations. Based on the results of the audit, three (3) findings have been identified. All (3) of these findings are considered significant.

Listed below is a summary of the findings identified in this report:

1. General Services Department is performing a low percentage of the manufacturer's recommended Preventative Maintenance Procedures.
 - a. Cummins Diesel – Main MSC = 10.26%, North West MSC = 17.95%
 - b. Condor Chassis – Main MSC = 16.32%, North West MSC = 26.53%
 - General Service's average time between Preventative Maintenance Operations is 471 hours. General Service's Preventative Maintenance Schedule calls for a Preventative Maintenance Operation every 300 hours.
 - As of May 16, 2013 - 36.71% of the Automated Side Loaders at the Main Municipal Service Center are an average of 355.72 hours past due on Preventative Maintenance.
 - 26.32% of the Automated Side Loaders are an average of 47.5 hours past due on Preventative Maintenance at the North West Municipal Service Center.
 - At the Main Municipal Service Center General Services is manually writing preventative maintenance data on the side of the garbage trucks to track PM's instead of using the Fleet Management System-Fleet Focus.
2. A review of the billing data for March 2013 indicated that the General Services Department does not provide its customers with a detailed monthly billing statement.
3. General Services does not track comeback repairs accurately using Fleet Focus data. They rely on the Ticket Writer to research work order history to ensure the comeback status.

For a detailed explanation of the findings please refer to the body of this Audit Report.

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BACKGROUND

The General Services - Fleet Services Division provides maintenance and repair to over 2,700 of the City's vehicles which includes approximately 110 garbage trucks. The department is headquartered at the Municipal Services Center (MSC), 1059 Lafayette Drive, El Paso, TX. Fleet Services has a second NW MSC located at 4096 Doniphan Bldg. B, El Paso, TX

Environmental Services (ES) provides trash and recyclable pick-up Tuesday through Friday every week for the City of El Paso. General Services Fleet Services Division is responsible for providing the required number of operational garbage trucks to complete the trash and recyclable pick – ups mentioned above. ES requires 62 Automatic Side Loader (ASL's) type garbage trucks for every Tuesday through Thursday morning pull out and 67 ASL's on Friday morning pull outs. They also require 8 Rear Loaders for Tuesday through Friday morning pull outs.

Environmental Services' Fleet includes 98 Automated Side Loader type garbage trucks. Statistics taken from *Government Fleet Fact Book* recommends that ASL's be replaced after 7 years. Environmental Services currently has 31 active ASL's that exceed 7 years old. Environmental Services' Capital Improvement plan includes the purchase of 34 new ASL's over fiscal years 13, 14 and 15.

However, there have been instances where there have not been enough trucks available to make morning pull out. This puts a burden on the system and results in unsatisfied customers when their trash does not get picked up on their designated day.

AUDIT OBJECTIVES

The objective of this audit is to evaluate the processes used by the General Services – Fleet Services in the scheduling and maintenance of the garbage trucks to identify why there are not enough trucks available for morning pull out.

To provide assurance of the audit objective we will evaluate the following areas:

- Scheduling of preventative maintenance
- Scheduling of repairs
- Vehicle turnaround time
- Vehicle comebacks
- Age of the garbage truck fleet

AUDIT SCOPE

This scope of this audit is limited to garbage truck maintenance for fiscal year 2012-2013.

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AUDIT METHODOLOGY

To achieve our audit objectives we:

- Conducted interviews with General Services Department management and staff;
- Conducted an analysis of the Preventative Maintenance Program at the Fleet Services Division of the General Services Department;
- Conducted a review of the garbage truck manufacturer's recommended preventative maintenance operations;
- Conducted an analysis of Fleet Service's scheduling of repairs to the garbage trucks;
- Conducted an analysis of Fleet Service's repair work order turnaround time;
- Conducted a Review of the Automated Side Loader garbage truck drops;
- Calculated the average age of the current garbage truck fleet;
- Conducted interviews with Environmental Services Department management and staff regarding monthly billing;
- Conducted a review of a loaded garbage truck weights at the landfill.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

This audit was also conducted in conformance with the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors.

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***SIGNIFICANT FINDINGS, RECOMMENDATIONS,
AND MANAGEMENT'S RESPONSES***

The definition of a "Significant Finding" is one that has a material effect on the City of El Paso's financial statements, identifies an internal control breakdown, a violation of a City procedure, or a violation of a law and/or regulation, which the City is required to follow. Any finding not meeting these criteria will be classified as a "Regular Finding".

Finding 1

Comprehensive PM Program

1. *Cummins Diesel Owner's Manual – ISX12/ISX11.9 CM2250 – Section 2 – Maintenance Guidelines – Pages 2 to 2-4. Lists 39 preventative maintenance procedures regarding the garbage truck engine.*
2. *Condor Operator's & Maintenance Manual – Maintenance Operation Sets – Pages 00/16 to 00/17. Lists 49 preventative maintenance procedures regarding the garbage truck chassis.*
3. *Bridgeport Automated Side Loader body PM recommendations call for daily gripper arm lubrication.*
4. *McNeilus Automated Side Loader body PM recommendations call for daily arm assembly lubrication.*

General Services Department (GSD) is performing a low percentage of the manufacturer's recommended Preventative Maintenance (PM) requirements on garbage trucks.

- Manufacturer's suggested PM requirements compared to PM's completed at the Main Municipal Service Center (MSC) and the North West MSC:

Manufacturer	Number of Manufacturer PM Operations	Number of Manufacturer PM Operations covered by PM A & B at Main MSC	Percentage of Manufacturers PM coverage	Number of Manufacturer PM Operations covered by PM A & B and Check list at the NW MSC	Percentage of Manufacturers PM coverage
Cummins Diesel	39	4	10.26%	7	17.95%
Condor Chassis	49	8	16.32%	13	26.53%

Note: GSD performs lubes on the Automated Side Loader (ASL) bodies on Mondays and Wednesdays.

Timely PM's

General Services' PM schedule is as follows:

1. *PM "A" Every 300 hour interval.*
2. *PM "B" Every 900 hour interval.*

Consequently either a PM "A" or PM "B" should be performed every 300 hours.

General Services is not performing preventative maintenance on the garbage trucks in intervals of 300 hours as stated in their PM schedule.

Based on a judgmental sample of 11 garbage trucks and a time frame of April 1, 2012 to March 31, 2013 the average time between PM's was 471 hours.

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Past Due PM's

General Services' PM schedule is as follows:

3. PM "A" Every 300 hour interval.
4. PM "B" Every 900 hour interval.

Consequently either a PM "A" or PM "B" should be performed every 300 hours.

According to the Fleet Focus "Equipment Due or Late for PM by Department" report, as of May 16, 2013:

- 36.71% of the Automated Side Loaders (ASL's) at the Main Municipal Service Center were past due on their PM's by an average of 355.72 hours.
- 26.32% were past due on their PM's by an average of 47.5 hours at the North West Municipal Service Center.

PM status on the Automated Side Loaders (ASL):

ASL Status	Main MSC	NW MSC
Total ASL's assigned	79	19
Total ASL PM's past due	29	5
Percentage of PM's past due	36.71 %	26.32%
Average hours late	355.72	47.5
Average days late	99.71	14

Preventative Maintenance Tracking

General Services Department has a dedicated Fleet Management System (Fleet Focus) in place that is to be used for tracking and scheduling operations such as PM's. It is the official record of PM's for the City of El Paso's General Services Department.

At the Main Municipal Service Center, Fleet Services' staff are manually writing preventative maintenance data on the side of the garbage trucks to track and schedule PM's instead of using the Fleet Management System – Fleet Focus.



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Recommendation

We recommend the General Services Department:

1. Develop a comprehensive PM schedule based on the manufacturer's recommendations.
2. Develop a PM schedule that will address the high failure rate areas of the ASL garbage trucks.
3. Schedule more PM's / Garbage Truck Repairs when the garbage trucks are not in use and available.
4. Ensure that Maintenance Personnel are utilizing the features offered by Fleet Focus, the fleet management software for the City of El Paso's General Services Department.

Management's Response

In FY 14, GSD will charge the correct labor rate to capture its labor costs which will allow the Fleet Division to increase service and improve our Preventive Maintenance Program without damaging our Internal Service Fund. Up until now, GSD has been losing revenue with every labor hour expended. GSD's labor charge in FY 09 was \$49 per hour. This was assessed by Maximus in 2010 to be more appropriately at \$60 per hour at the time. GSD's labor rate migrated to \$60 per hour in FY 13, but Maximus has assessed a proper rate to be \$75 per hour. Charging the correct labor rate of \$75 per hour in FY 14 will allow GSD to expand Preventive Maintenance services for the first time without further damaging the ISF balance sheet.

This issue was self-identified previously in the GSD Department's Strategic Plan as Issue 4: "The Internal Service Fund's operating costs exceeding the revenue recovery rate, as well as the inability to self-support capital needs for delivery of services in the Internal Service Fund, will continue to result in increased turnaround time for customers' vehicles and equipment and diminished ability to fulfill their departmental mission." This issue was self-addressed with Strategic Result 2: "By 2014, the City of El Paso will continue to move toward sustainability, as evidenced by a self-supporting internal service fund."

Response to Recommendation 1: GSD is expanding its Lube Shop in FY 14 by adding an evening shift consisting of a Supervisor and four General Services Workers to improve its PM Program. GSD has conducted an in-depth study of repair practices and how they affect the vehicle operation. GSD has looked at the most common repair failures and will make them part of a comprehensive preventative maintenance schedule. By reviewing the Work Load Reports generated by Fleet Focus, the arm, light, and gripper repairs have been identified as a large portion of the daily repairs.

- GSD has reviewed the manufacturer's requirements for the arm and developed a weekly checklist of items to be checked based on the manufacturer's standard, and the high failure items identified as items that fail due to lack of lubrication. A checklist for all three types of Automated Side Loader (ASL) vehicles has been developed at Forms A, B & C. The Arm Checklist will be used in the performance of the drive-through services four days a week.
- The body lubrications will be completed on Mondays and as required on Saturdays. GSD is coordinating with ESD to provide keys. The vehicles will not be moved but will have to be started in order to perform the weekly body PMs. We have developed a checklist for all three types of Automated Side Loader (ASL) vehicles at Forms D, E & F.
- GSD has incorporated vehicle chassis and body requirements into the PM-A service which is every 350 hours at Form G.
- GSD has also developed a PM-B service every 700 hours and a PM-C service every 1400 hours based on the manufacturer's requirements at attachments Forms H and I. GSD is adding the removal of the radiator every other year to the PM-C so it can be cleaned for calcium buildup to reduce vehicle overheating in the field.

Response to Recommendation 2: GSD has identified a number of components that have a high failure rate due to a lack of lubrication which is based on the experience of the technicians and reports generated by Fleet Focus for task codes 51ARMR, 51G and 51ARMX see attachments Forms J, K & L.

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- Swivel/airplane on the McNeilus body.
- Gripper bearings on the McNeilus body
- Lower arm pins on the Scorpion body
- Tailgate cylinder pins on the McNeilus body

We have also added components which are a part of most repairs coming into the shop on a daily basis.

- Arm functionality/looseness and torn, broken or missing parts.
- Gripper functionality/looseness and torn, broken or missing parts.
- Headlights and Turn Signals.

Response to Recommendation 3:

- a) Consolidate the daily, weekly and monthly requirements of all three body types into one weekly service divided between the arm and body lubrications.
- b) Arm lubrications will be performed as a drive-through service four days a week Tuesday – Friday as operators come back from their routes. This will cut the time in half because there will be no need for GSD Technicians to pick up the vehicle from the line and return it after completion. In addition, the arm will get a better service because the arm can be extended and all grease points will be serviced.
- c) Body lubrications will be performed on Mondays and on Saturdays if necessary. GSD will work out a schedule with the evening shift lube service workers.
- d) All lube General Service Workers will be trained to visually inspect and report potential problems on mechanical, structural, electrical and hydraulic components.
- e) Regular PM services will be done every day in the mornings and afternoons before and after the arm lubrication services.
- f) If a vehicle is in for repair and the same vehicle is due a PM, the PM will be accomplished after the repairs have been made. If mission requires, the vehicle will be released after repairs and the PM service rescheduled.
- g) To accomplish this GSD will need the cooperation of ESD to assign the units to show up for the arm lubrication on the assigned day as well as access to the truck keys to complete the body services.

Response to Recommendation 4: We are presently working with the Department of Information Technology Services to upgrade the Fleet Focus System from the 6.1 version to the AssetWorks 12.1 version. Once Version 12.1 is installed, GSD will request comprehensive training from AssetWorks on the newly-upgraded software system for all users.

GSD utilizes its dedicated Fleet Management System (Fleet Focus) for tracking and scheduling operations such as PM's. It is the official record of PM's. GSD manually writes preventative maintenance data on the side of the garbage trucks to facilitate good customer service so the customer department and driver may be aware of when the next service is due. This information does not replace Fleet Focus. This is common practice in the fleet service business. In consultation with ESD to insure quality customer service, GSD will place stickers in the garbage truck window in the future to remind the customer when the next service is due. This is at the request of the customer department. In addition to this, GSD will continue to generate service reports from Fleet Focus on vehicle services that are due and email those vehicle service dates to ESD weekly.

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Responsible Party

Milton Roberts (Fleet Manager) and Gustavo Armas (Fleet and Building Maintenance Superintendent).

Implementation Date

January 1st, 2014

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Finding 2

Billing Review

Best business practice requires a detailed bill be provided to your customers that can be reconciled to services or work performed.

A review of the billing data for March 2013 indicated that the General Services Department does not provide its customers with a detailed monthly billing statement.

Listed below is the March 2013 billing information from General Services Department to Solid Waste Collections and the Fleet Navigator data exported from Fleet Focus. The Internal Audit Office was unable to reconcile the March 2013 billing statement to Solid Waste Collections utilizing the Fleet Navigator data. As a result there appears to be a \$34,222.48 overcharge from the General Services Department to Environmental Services Department.

	Work Order PM	Work Order Total	Fuel Cost	Total Due
GSD Billing*	\$12,269.63	\$294,482.58	\$198,907.27	\$505,659.48
Fleet Navigator PDF Report Exported from Fleet Focus**	N/A	\$272,530.00	\$198,907.00	\$471,437.00
Difference				\$34,222.48

Source: *Fleet Maintenance Manager at General Services Department

**Business Manager at Environmental Services Department

Recommendation

We recommend the General Services Department create a detailed billing statement for their customers.

Management's Response

The General Services Department (GSD) provides billing information generated by Fleet Focus to customer Departments through a posting of charges by Department to the City Public Drive for their review. This report is a Department Summary produced by the Fleet Focus software. The Report is run utilizing "Summary Data" from Fleet Focus.

At the time of the audit, the internal Public Drive had been down and not accessible for several months. As this drive is made available, GSD will resume posting its billing report monthly so customer Departments may review. In the past, GSD produced and provided backup data generated by Fleet Focus to support the monthly report upon request by customer Departments. In the future, in order to provide more thorough billing information as recommended by the Internal Auditor, GSD will provide a detailed report utilizing Summary Data that drills down detail to the Equipment/Unit Number level in Fleet Focus. This Equipment/Unit Number corresponds to the vehicle bumper number.

There is no overcharge for March 2013. The Internal Audit Office was unable to reconcile the March 2013 billing statement to Solid Waste Collections utilizing the Fleet Navigator data because they ran the report utilizing Transactional Data rather than Summary Data. The difference between the two different data sets is that Transactional Data only incorporates Work Orders opened and closed during the designated period. Summary Data, however, incorporates Work Orders closed during the designated period regardless of when Work Orders were opened. As we only charge Work Orders that have been closed during the month, Summary Data is the more accurate data set to reflect our financial charges for the month.

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To facilitate the Internal Auditor's review of monthly charge reports, GSD Administration reconciled the two reports referred to in this audit. The reconciliation is provided and was a joint effort between our Senior Accountant, Luis Bustamonte, and ESD's Business and Finance Manager, Alfredo Chavez. ESD prefers to independently run their own report monthly for verification and are aware now how to properly run the report utilizing Summary Data. ESD agrees that Summary Data is the most appropriate data set in Fleet Focus/Navigator as a basis for monthly charges.

Responsible Party

Rene Barraza (Department Business and Finance Manager) and Luis Bustamonte (Senior Accountant).

Implementation Date

Fiscal Year 2014 (September 15, 2013)

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Finding 3

Garbage Truck Comebacks

A comeback is when a garbage truck comes back to the shop for the same repair within thirty days after the initial repair was made.

There are inconsistencies in the method “Comebacks” are classified. General Services does not track comeback repairs accurately using Fleet Focus data. They rely on the Ticket Writer to research work order history to ensure the comeback status.

Using the Fleet Focus “Equipment Comeback” report for March 2013, we identified the work orders initially opened in March 2013 and comebacks occurring in the same month. Based on our review, Ticket Writers are showing a comeback rate of 6.34% and the Fleet Focus “Equipment Comeback” report is showing 11.27%.

Shop	Repair Work Orders opened and closed in March 2013	Comebacks in March 2013 after repair in March 2013 Per the Ticket Writer’s Assessment	Ticket Writer Comeback Percentage for March 2013	Comebacks in March 2013 after repair in March 2013 Per the Fleet Focus Equipment Comeback Report	Fleet Focus Comeback Percentage for March 2013
Main MSC Shop 14	223	18	8.07%	29	13.00%
NW MSC Shop 50	61	0	0.00%	3	4.92%
Totals	284	18	6.34%	32	11.27%

Recommendation

We recommend that the General Services Department ensure that Fleet Focus System data is used to correctly report comeback information.

Management’s Response

The Fleet Focus Equipment Comeback Report generated by the system and provided by the Internal Auditor is neither user-friendly nor responsive to shop needs. Specifically, we are not able to segregate comeback information by Equipment/Unit Number, Date of Repair (warranty period), or Shop Location. Since the creation of reports process in Fleet Focus is not responsive to shop needs, we presently have the ticket-writer verifying the comeback data manually.

We are presently working with the Department of Information Technology Services to upgrade the Fleet Focus System from the 6.1 version to the AssetWorks 12.1 version. Once Version 12.1 is installed, we will request training from AssetWorks on the reports that are generated by the newly-upgraded software system. We will seek training on generating a useful Comeback Report from Fleet Focus that segregates data by Equipment/Unit Number, Date of Repair (warranty period), Shop Location, and Task Code. As of August 6, 2013, we have a Purchase Order established with AssetWorks totaling \$3,900 to install the upgrade to the 12.1 version.

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GSD has prioritized replacing a completely failing software system, its fueling software, which is presently in the process of being replaced. GSD made a leadership decision not to replace both the fueling software and upgrade the Fleet Focus work order software packages at the same time to minimize the trauma to the Fleet Division. However, as a result of this audit, GSD will expedite both at the same time if more accurate and user-friendly reports require immediate action and can't wait for the fuel software to be up and functioning.

This issue was self-identified in the Department's Strategic Plan as Issue 3: The deferment of essential technology upgrades (software updates, hardware maintenance and training, data entry) impedes world-class customer service and will, if not addressed, result in:

- Delayed rapid fueling at city fueling sites:
- Delayed delivery of timely and accurate tracking, scheduling, work order processing, billings, and report generation for customers.
- Delayed response to customer records requests.

Responsible Party

Milton Roberts (GSD Fleet Manager); Gustavo Armas (GSD Fleet and Building Maintenance Superintendent); and Benjamin De Leon (DoITS Business Systems Analyst).

Implementation Date

January 1st, 2014

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INHERENT LIMITATIONS

Because of the inherent limitations of internal controls, errors or irregularities may occur and not be detected. Also, projections of any evaluation of the internal control structure to future periods are subject to the risk that procedures may become inadequate due to changes in conditions, or that the degree of compliance with the procedures may deteriorate.

CONCLUSION

We have concluded work on the audit objectives of the General Services Fleet Division's Garbage Truck Maintenance Review Audit. In accordance with *Generally Accepted Government Auditing Standards* we are required to conclude whether General Services Department met the objectives of this audit. Based on our audit work, we have determined the following:

General Services Fleet Division is meeting their objectives in the following areas:

- They have greatly improved operations since our last audit report dated October 1, 2008.
- The recent "Exceptional Performance" award presented Environmental Services for high performing garbage and recycling operations could not have happened without support from General Services' Fleet Services division.

We have determined that the General Services Fleet Division is not meeting the objectives of the audit in the following areas:

General Services Fleet Division is not:

1. Performing a high percentage of the manufacturer's recommended Preventative Maintenance requirements on the garbage trucks.
2. Performing Preventative Maintenance in a timely manner.
3. Utilizing the City of El Paso's Fleet Management System - Fleet Focus, to its capability.
4. Providing its user departments with a detailed monthly billing statement.

Implementation of the recommendations provided in this Audit Report should assist the General Services Department in reducing the number of urgent repairs and increase the number of road ready spare garbage trucks. During the completion of this audit, the Internal Audit Office identified a need for changes in the philosophy in the method Preventative Maintenance requirements are completed. The management at General Services has been receptive in addressing the issues identified in this audit and is willing to institute a change in their method of doing business. Once this new way of doing business is implemented, the customers of the General Services Department should be pleased with the services that are provided.

We wish to thank the General Service Department's management and staff for their assistance and numerous courtesies extended during the completion of this audit.

Signature on File

Edmundo S. Calderón, CIA, CGAP, CRMA, MBA
Chief Internal Auditor

Signature on File

Daryl Olson
Senior Auditor

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Jane Shang, Deputy City Manager
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